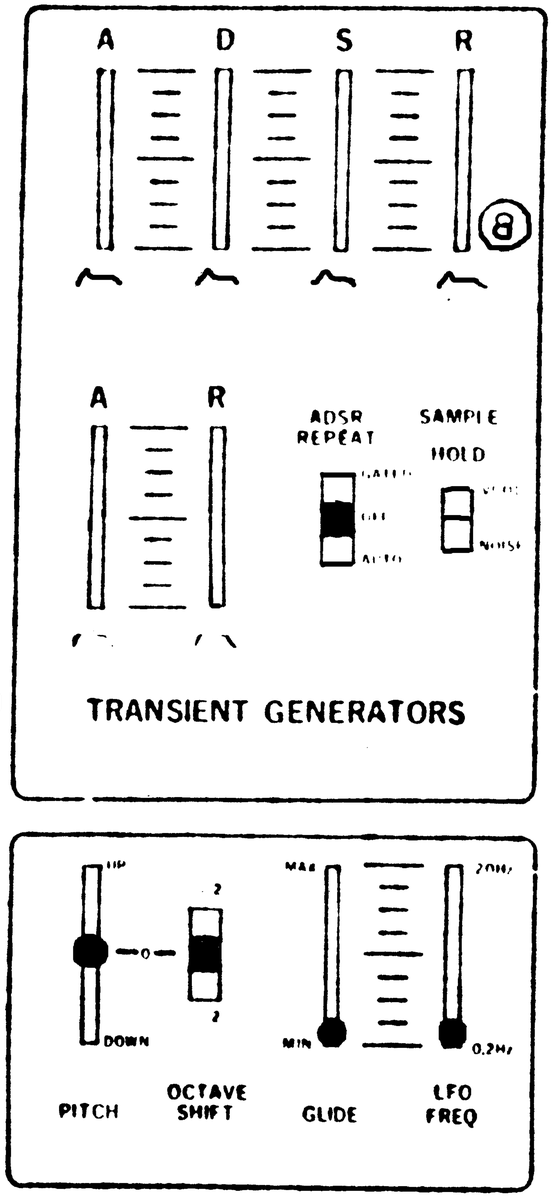
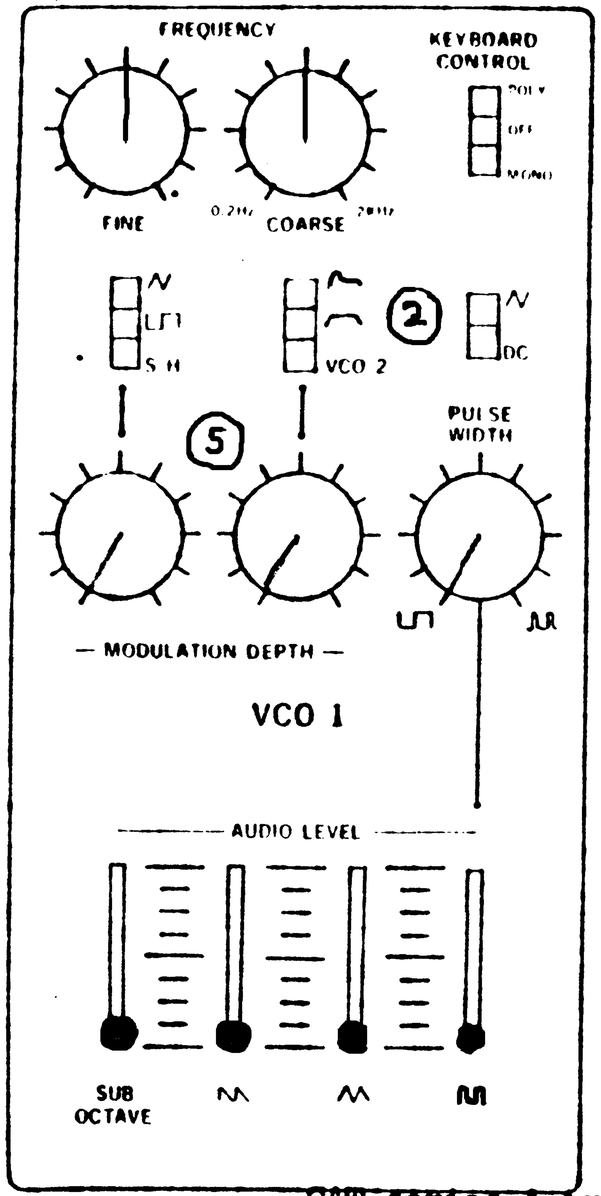
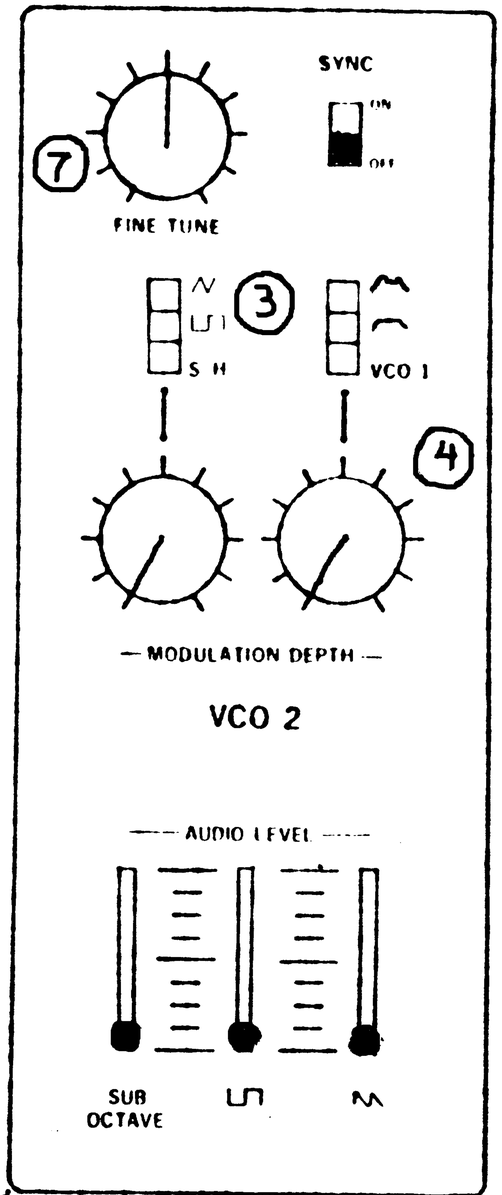
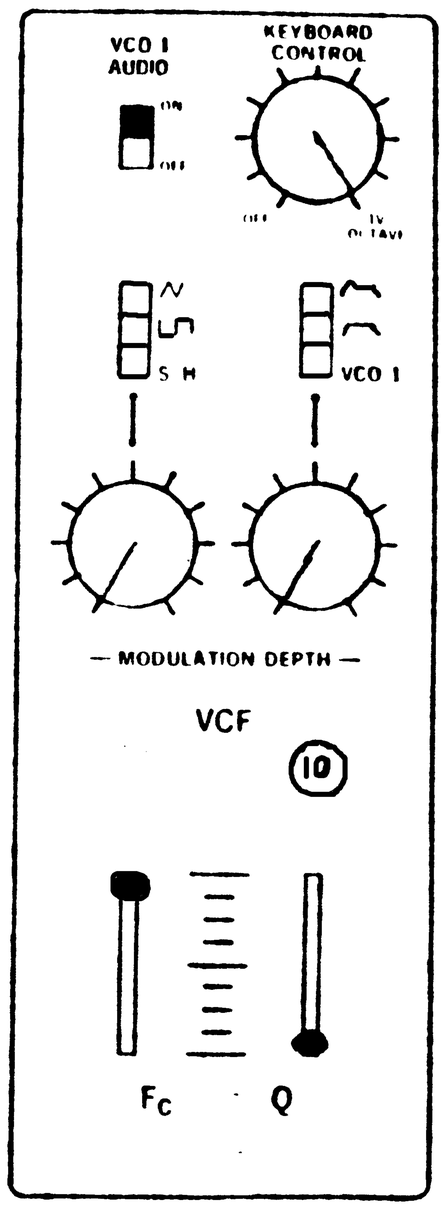
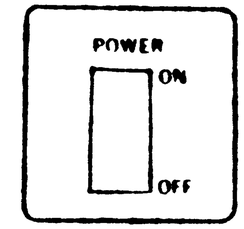
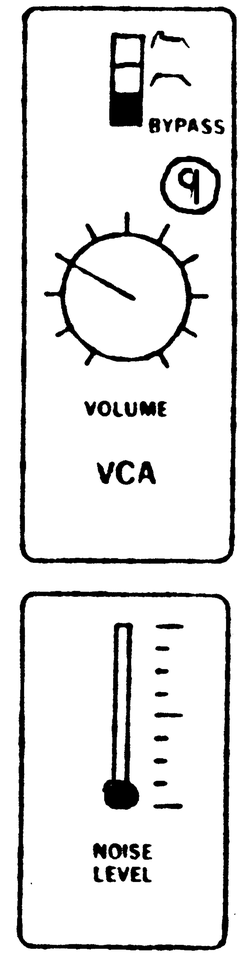












NOTE: Trimmer 11 on underside of synthesizer.

CAT series A trimmer locations

1. Keyboard current trimmer
2. VCO 1 range
3. VCO 2 range
4. VCO 2 volts/octave
5. VCO 1 volts/octave
6. Octave shift adjust
7. Poly/Mono balance
8. Noise Level
9. VCA offset
10. VCF volts/octave
11. Poly/mono offset

4.00 v

6v REF. TO IC 18, 19

+15v

R1 820

Z1 IN821

6V

IC 5A ½ 1458

R3 6.2K

TR2 2K 4v ADJ

R4 12K

TR1 2K I_K ADJ

R2 9.1K

Q1 2N3906

IC 3A ½ 1458

C32 22

IC 2B ½ 1458

100K 1%

C7 .01

IC 2A ½ 1458

CV 2A TO SW10

IC 4A ½ 1458

100K 1%

100K 1%

I_K

833μA

SP2 100K LIN "PITCH"

R22 10K

D2

D3

R21 1.5K

SW3 "OCTAVE SHIFT" +2 0 -2

200K 1%

100K 1%

100K 1%

IC 1A ½ 1458

CONTROL VOLTAGE PROCESSORS

200K

100K

100K

100K 1%

IC 1B ½ 1458

CV1A TO SW10 TO BOARD B

R143 10K

BLACK RED BLUE YEL BROWN

TO KEYBOARD

J6 FROM MASTER

GREEN

ORANGE

D12

D11

+7v

BLUE

IC 7 307

C4 4.7

J7 GLIDE SW.

YEL.

SP1 100K LOG "GLIDE"

IC 9 CD4016

R6 15K

IC 6 CA3140

C2 .47 METALLIZED MYLAR

GATE A -7/+7

R7 1K

J5 TO SLAVE

GREY

IC 3B ½ 1458

D19

C11 .22

C31 22

+7v

R16 10K

R18 220K

IC 9B CD4016

KYBD. TRIG.

C12 .1

R17 1.5K

Q2 2N3904

IC 8 555

R27 220K

C9 .001

C8 .01

TRIGGER GENERATOR

R28 220K

C10 .01

R151 470K

+7v

R8 220K

R9 1M

IC 13C MC3401

R25 1K

R20 1K

KYBD. GATE A -7/+7

-7/+7

+7v

D13

R5 4.7K

D14

C1 .1

R159 100K

IC 7 301

IC 9A CD4016

KYBD GATE B 0/+7

TO SW1

TO IC 10B, 11C

R19 100K

-7v

GATE GENERATOR

C5 .1

R11 2K

R13 470K

R14 47K

R15 390K

CV2B FROM SW10

C9 .001

R10 15K

IC 4B ½ 1458

IC 5B ½ 45H

TO IC 4 +15v C13 4.7μ

TO IC 4 -15v C14 4.7μ

+15v TO IC 1, 2, 3, 4, 5, 6, 15 AND ALL +15v DESIGNATIONS

C24 .047

+15v

R150 150 ½W

R23 150 ½W

C47 22

C45 .047

C30 4.7

Z2 IN754A

C15 .047

+7v TO ALL +7v DESIGNATIONS AND IC 7, 9, 13

-15v TO ALL -15v DESIGNATIONS AND IC 1, 2, 3, 4, 5, 15

C23 .047

-15v

R149 150 ½W

R24 150 ½W

C48 22

C46 .047

C29 4.7

Z3 IN754A

C16 .047

-7v TO ALL -7v DESIGNATIONS AND IC 7, 9, 13

NOTES:

1. ALL RESISTORS ¼ W 5% UNLESS OTHERWISE MARKED
2. ALL CAPACITORS IN μF " " "
3. * DENOTES RESISTOR PACK - ALL 1% TOL.
4. ALL DIODES 1N914/4148
5. O/O DENOTES KEY UP/KEY DOWN VOLTAGES

CAT SYNTHESIZER
MODEL 1853
BOARD A REV A, B

ADSR TRANSIENT GENERATOR

TRIG
D4
D5
P29 4.7K
CD4001 IC10C
R30 100K
P32 4.7K
D6
D7
R31 100K
IC10D CD4001
IC10A CD4001
GATE B
0/+7
IC10B CD4001
R34 100
IC12A CD4016
"ATTACK" 1M LOG SP3
"DECAY" 1M LOG SP4
R35 1.2K
IC12D CD4016
"SUSTAIN" 10K LIN SP5
+15v
Q3 2N5457
C18 2.2
SP6 1M LOG "RELEASE"
IC12B CD4016
R36 10K
-15v
+6.8V
560
+15v
Z6 IN758A
C28 4.7
C27 .047
R12 1K
ADSR OUT
IC13D MC3401
R38 430K
R37 470K
ADSR REPEAT TRIG
SW1
+7v
AUTO
OFF
GATED
"ADSR REPEAT"
R60 4.7K
CD4016 IC11B
CD4016 IC11A
ADSR REPEAT GATE
R33 100K
D17
R62 33K
R61 100K
6.8V
GATE B
0/+7
IC11C CD4016
R39 100
"ATTACK" 1M LOG SP7
+15V
Q4 2N5457
R26 1K
AR OUT
"RELEASE" 1M LOG SP8
C19 2.2
R41 10K
R40 100K
IC11D CD4016
IC12C CD4016
-15V
AR TRANSIENT GENERATOR

LOW FREQUENCY OSCILLATOR
C25 .01
D10
D9
R58 100K
D8
R59 100K
-12V
C22 .1
R52 220K
LFO FREQ 100K LIN SP9
R53 560
IC14B 1/2 1458
R50 15K
R51 33K
IC14A 1/2 1458
D1
LFO
R56 1.5K
R49 1K
LFO
-7v
R157 10K
R158 15K
SW2
VCO1
NOISE
S+H
R47 220K
IC13B 1/4 MC3401
R48 220K
IC9C CD4016
+15v
Q5 2N5457
R64 1K
S+H
C21 .1
R63 10K
-15v
SAMPLE + HOLD
+15v
R54 220
+12v TO IC14
Z4 IN759A
-15v
R55 220
-12v TO IC14
Z5 IN759A
+15v
TR9 100K NOISE BIAS
R44 33K
C20 2.2
R43 560
R45 220K
R66 1K
NOISE OUT
R42 100K
Q6 BC172B
N.C.
IC13A 1/4 MC3401
R46 470K
+7v
NOISE GENERATOR

NOTES:

1. ALL RESISTORS 1/4W 5% TOL. UNLESS OTHERWISE MARKED
2. ALL CAPACITORS IN μF UNLESS OTHERWISE MARKED (p = PICOFARADS)
3. ALL DIODES IN914/4148
4. Q6 SELECTED FOR NOISE
5. Q3, Q4 SELECTED FOR LOW OUTPUT OFFSET VOLTAGE
6. O/O DENOTES KEY UP/KEY DOWN VOLTAGES

CAT SYNTHESIZER
MODEL 1853
BOARD A REV B

KEYBOARD CONTROL
SW10

CV2A
CV2B
CV1A
"POLY"
"OFF"
"MONO"
CV1

TO IC 16, 17, 20, 21
+15v
-15v
C44 .047
C43 4.7
C51 .047
C39 4.7

VOLTAGE CONTROLLED OSCILLATOR (VCO1)

+15v TO IC 26
C36 .047

IC 26D CD4093
IC 26A CD4093
IC 26C CD4093

C36 .001 poly.
IC27 CA3140
IC32 CD4066
"SYNC" SW8
OFF
ON
D15
R156 100K

R152 220K
C17 .001
R153 470K
-7v
VCO1 SUB
IC25A CD4013
SP10 100K LOG
R99 560K
SUB OCTAVE VCO1.
SP13 100K LOG
R101 560K
VCO1

+15v
-15v
C49 .047
C50 .047
TO IC 31

+6v
R137 220K 1%
IC 18 CA3046
R144 1K
R145 1K
R141 10K
R138 15K 1%
R140 2.7K 1%
R139 6.8K 1%
R142 120K
C33 220p
IC20 301
270p
-15v

* 100K 1%
N.C.
100K 1%
TR9 2K
POLY BALANCE
12 N.C.

SW4
S+H
RP1
R57 470K
MOD. DEPTH

R129 100K 1%
R133 2K 1% T.C.
R135 47 1%
TR7 100
VCO1 V/OCT
R136 820 1%
R132 2K 1%
IC17A 1/2 LM398TC

+6v
RP7 VCO1 FINE TUNE
R131 220K 1%
R126 324K 1%
* 200K 1%
R104 50K 1%
IC16A 1/2 1458

TR5 100K
VCO1 RANGE
* 100K 1%

R127 50K 1%
R128 50K 1%
R134 324K 1%
RP6
VCO1 COARSE TUNE
R130 100K

SW5
VCO2
RP2
MOD. DEPTH

VCO2 RESET PULSE
R85 100K
R86 100K
R89 2.2K
R90 2.2M
VCO1
-7v
R84 120K
IC28A 1/2 1458
IC28B 1/2 1458
VCO1 M

SP11 100K LOG
R100 220K
VCO1
R103 100K
R105 1K
VCO1 AUDIO TO BD. B
R68 4.7K
TO SW2
TO SW7

C37 100p
R92 100K
R94 100K
R93 100K
IC30A 1/2 1458
R95 220K
C38 220p
R98 220K
R96 100K
IC30B 1/2 1458
R102 220K
SP12 100K LOG VCO1
IC31A 1/2 1458

SW6
S+H
RP3
MOD. DEPTH
R125 470K

* 100K 1%
R121 100K 1%
R120 2K 1% T.C.
IC16B 1/2 1458
IC17B A798TC
R119 47 1%
R154 1.8K
TR8 100 VCO2 V/OCT
R118 820 1%

SW9
DC
-7v
R91 56K
RP8
R88 100K
R87 330K

R161 4.7K
R97 4.7K
Q7 2N5457
IC29 301

SP 16 100K LOG VCO2
R109 220K
R108 100K
R107 1K
VCO2 AUDIO TO BD. B

VOLTAGE CONTROLLED OSCILLATOR (VCO2)

+6v
RP5 VCO2 TUNE
* 200K 1%
TR6 100K
VCO2 RANGE
* 100K 1%
CV1A
* 100K 1%

R117 220K 1%
IC19 CA3046
R146 1K
R147 1K
R116 10K
220p
R114 15K 1%
IC21 301
C34 220p
R115 120K
R113 6.8K 1%
R112 2.7K 1%
-15v
R124 324K 1%

VCO2 M
R79 120K
R77 100K
R81 2.2K
R80 2.2M
VCO2 ⊓
-7v
C35 .001 poly
R78 100K
IC22A 1/2 1458
IC22B 1/2 1458
IC23 CA3140

SP 15 100K LOG ⊓ VCO2
R110 560K
SP 14 100K LOG
R111 560K
VCO2 SUB ⊓

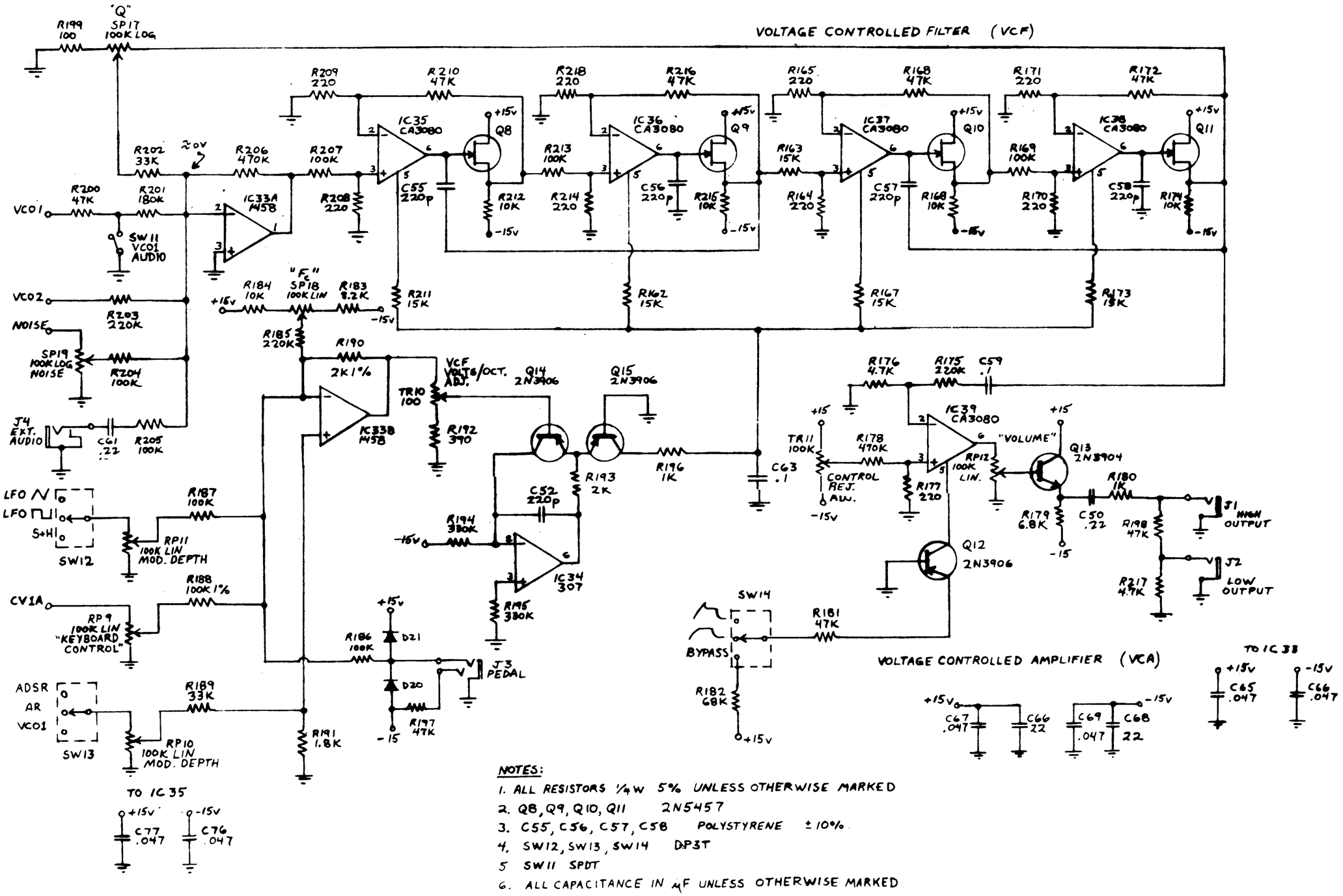
IC24 CD4093
C54 .001
D18
R160 220K
R73 10K
R123 470K
-7v
IC25B CD4013

+15v
R70 270
Z11 IN754A
+7v
C42 .047
-15v
R69 270
Z12 IN754A
-7v
C41 .047
TO IC 22, 25, 28, 29, 30

SW7
VCO1
RP4
MOD DEPTH
R122 100K

NOTES:
1. ALL RESISTORS 1/4 W 5% TOL UNLESS OTHERWISE SPECIFIED
2. ALL CAPACITORS IN μF UNLESS OTHERWISE SPECIFIED (p = PICOFARADS)
3. ALL DIODES IN914 / 4148
4. ALL ROTARY POTENTIOMETERS 100K LIN.
5. * DENOTES RESISTOR PACK - ALL 1% TOL

CAT SYNTHESIZER
MODEL 1853
BOARD A REV B

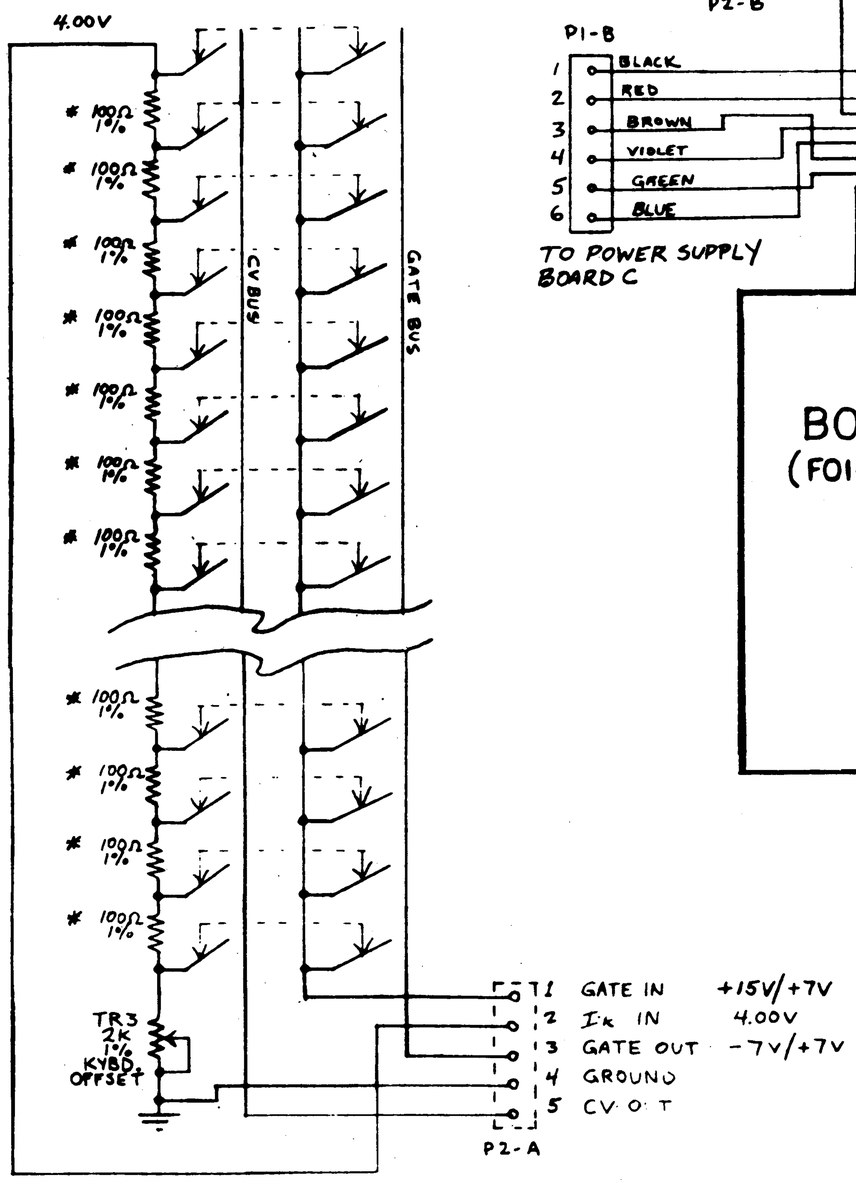


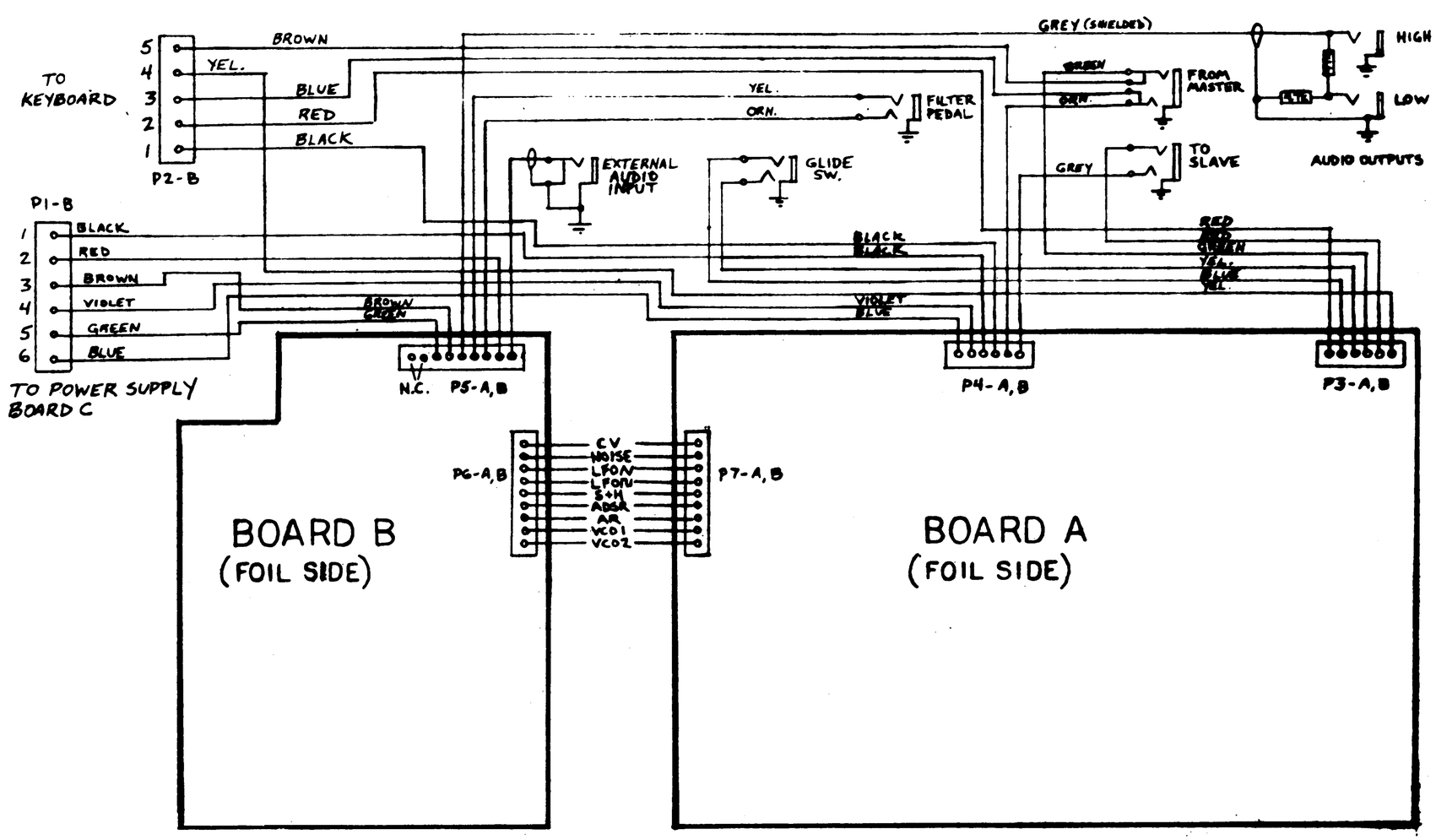
NOTES:

1. ALL RESISTORS 1/4W 5% UNLESS OTHERWISE MARKED
2. Q8, Q9, Q10, Q11 2N5457
3. C55, C56, C57, C58 POLYSTYRENE ± 10%
4. SW12, SW13, SW14 DP3T
5. SW11 SPDT
6. ALL CAPACITANCE IN μF UNLESS OTHERWISE MARKED

CAT SYNTHESIZER
MODEL 1853
BOARD B REV A

KEYBOARD

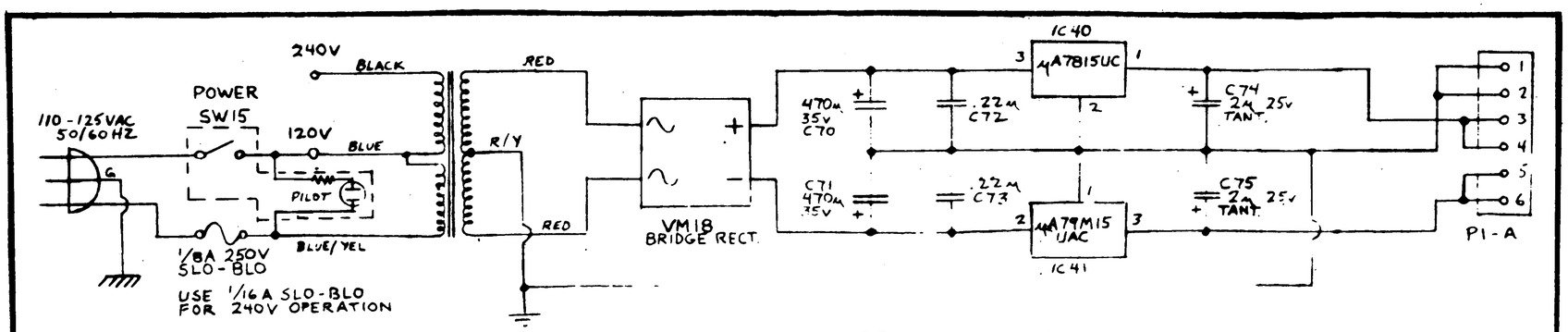




WIRING HARNESS LAYOUT

NOTES:

1. ALL RESISTORS IN OHMS UNLESS OTHERWISE MARKED
2. ALL CAPACITORS IN μF UNLESS OTHERWISE MARKED
3. * DENOTES RESISTOR PACK 1% TOL.
4. 00/00 DENOTES KEY UP/KEY DOWN VOLTAGES



POWER SUPPLY BOARD C